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NEW SPECIES OF THE FAMILY IPIDÆ (COLEOPTERA)* PART III.

BY J. M. SWAINE,

ENTOMOLOGICAL BRANCH, DEPARTMENT OF AGRICULTURE, OTTAWA.

Pityokteines jasperi, n. sp.

A small, very slender species, closely allied to *sparsus* Lec; with the elytra very closely, regularly, deeply punctured behind.

Description of the female—Length, 2.3 mm.; width, .7 mm.; colour, dark piceous, nearly black, with the antennæ and legs paler. The *head* has the front plano-convex, densely very finely granulate, with a small median tubercle, and thickly clothed with very long curved yellow hairs much as in *sparsus*; the antennal club thickened basally, very obliquely truncate and depressed apically, with the sutures confined to the apical depressed outer surface.

The *pronotum* is distinctly longer than wide, with the sides straight on the basal half, broadly evenly rounded in front; coarsely, rather densely, and irregularly asperate in front; rather coarsely, moderately closely and deeply punctured behind, more finely near the rather wide smooth median line; with sparse long hairs about the sides and in front, and the front margin densely fringed with long curved yellow hairs.

The *elytra* are elongate, with the sides parallel beyond the middle, the striæ narrowly faintly impressed, the sutural striæ distinctly deeper and wider, the stria punctures of median size, very close on the disc, and deep; the interstria punctures regularly uniseriate, deep, as large as those of the striæ and nearly as close on the caudal half, as close and granulate near the declivity, a little smaller and less numerous towards the base. The declivity is steep, convex, with the suture elevated and granulate and the

*Contributions from the Entomological Branch, Department of Agriculture, Ottawa.

sutural striae strongly impressed; almost unarmed, with the declivital teeth reduced to three extremely minute acute granules in the usual situations, on the 2nd and 3rd and 6th interspaces, with a very few additional minute granules; the declivity very closely and deeply punctured. The pubescence of the elytra is rather short and abundant on the sides and behind.

The *male* has the front plano-convex, densely, deeply granulate-punctate, with an indistinct median carina, and sparsely hairy; the declivity concave from the deeply widely impressed sutural striae, sparsely deeply punctured, shining, the 2nd and 3rd teeth large, acute, within the rather distinct granulate lateral margin, the 2nd curved, the first tooth minute. Jasper Park, Alberta, Canada. The type is in the collection of the Entomological Branch, Ottawa.

***Pityokteines elegans*, n. sp.**

This species is closely allied to *sparsus* (*balsameus*) Lec., but is slightly more elongate, with the elytral striae finely, regularly impressed, and the interstrial punctures very small.

Description of the female—Length, 2.5 mm.; the *head* has the front flattened, densely, finely granulate, very densely clothed with very long incurved orange-coloured hairs; the antennal club wider than long, the first suture nearly straight except at the sides, the distal oblique part strongly depressed.

The *pronotum* is slightly longer than wide, with the sides feebly arcuate on the basal half; the front margin broadly rounded, rather closely asperate in front; rather finely and sparsely punctured behind, with a wide smooth median space; the hairs sparse, long and erect about the sides, thicker on the frontal declivity and gradually longer from the summit to the apical margin, which is densely fringed with very long orange hairs similar to those of the front of the head.

The *elytra* are slightly longer than in *sparsus*, with the sides parallel, the apex semicircularly rounded, the striae finely regularly impressed, the sutural striae somewhat deeper and wider than the others; the strial punctures small and very closely placed, slightly smaller at the base; the interspaces wide, moderately convex on the disc, smooth except near the declivity; the interstrial punctures

sparse on the disc and distinctly smaller than those of the striae, becoming closer, as large as those of the striae and granulate near the declivity and on the sides; the declivity very steep, almost as in *sparsus*, shining, sparsely but strongly punctured; the suture raised, the declivital face somewhat circularly flattened and rather deeply and broadly sulcate on each side, with three small, acute teeth on each side, situate just within the rather ill-defined, crenulate, lateral margin of the declivity, the ventral acute margin formed by two crenulations on each side and absent near the suture.

The *male* has the front convex, rather coarsely punctured, more sparsely behind, rather densely towards the epistoma, the punctures slightly granulate, sparsely hairy; the pronotum without the fringe of long hairs from the front margin; the elytral declivity deeply concave, with the 2nd and 3rd teeth of each side forming part of the lateral margin and very large, stout, incurved and acute.

Described from four females and two males, sent by Professor H. F. Wilson, Corvallis, Oregon, Labels: Hood River, O.; Childs Coll.; 8-20-14; Also, Grassy Lake, Lassen Co., Cal., *Pinus monticola*, Mr. Ralph Hopping. The type is in the collection of the Entomological Branch, Ottawa.

***Orthotomicus lasiocarpi*, n. sp.**

A very small slender species combining characters of *Orthotomicus* and *Pityokleines*.

Description of the female—The length, 2 mm.; slender. The *head* has the front convex, deeply rather coarsely punctured, sparsely towards the vertex, densely towards the epistoma; with a wide median carina on the caudal two-thirds; transversely impressed on the epistoma; the pubescence short and inconspicuous, closer on the epistoma; the antennal club slightly longer than wide, obliquely truncate on the distal half, with the distal segments showing from the upper side at the apex, the sutures procurved, the sutures of the under face on the distal half and slightly procurved.

The *pronotum* is slightly longer than wide, feebly arcuate on the sides behind, slightly constricted before the middle and broadly

rounded on the front margin; the asperities of the cephalic half numerous and subconcentric; the caudal half moderately deeply, closely punctured, densely on the sides; the median line smooth, and narrowly carinate from the summit to the base; the lateral oblique depressions connected across the dorsum.

The *elytra* are elongate, with the sutural striae slightly, broadly impressed, a little more widely behind; the other striae not impressed; the strial punctures very small, moderately close and deep; the interstrial punctures nearly as large and nearly as close as those of the striae, finely granulate behind; the suture elevated except at the base and granulate towards the declivity. The *declivity* convex from the side, steep, the sutural striae deeply widely sulcate, wider towards the apex, terminated before the apex of the *elytra* by the obtuse, narrow, apical projection; shining, very minutely rather sparsely punctured; with a few minute denticles on each side in the usual position on the crest of the lateral convexity, the 1st on the end of the 2nd interspace, the 2nd on the 3rd interspace, and two close together on the 5th and 6th interspaces. The second visible abdominal sternite is as long as the two following ones united. The male has the front as in the female; it differs only in having the declivital denticles of the 2nd, 3rd and 6th interspaces developed into small acute teeth, and the declivital impression apparently deeper thereby. The genitalia have the "trough" a very long spiral band and the processes (feet) very long and slender, very much as in *sparsus*.

This species is of the size of *jasperi*, but more slender, and is allied to the species of *Pityokteines* in the small size, the *elytral* punctuation, the poorly developed apical projection of the *elytra*, the long second visible abdominal sternite, and the characters of the male genitalia. The antennal club, however, although flattened considerably, has the apical segments incompletely telescoped, showing distinctly at the apex from the upper side, the apex of the declivity, too, is distinctly though obtusely margined; and the female lacks the strong tuft of hairs on the front; these characters unite the species rather definitely with the genus *Orthotomicus*.

Type series from Rogers' Pass, British Columbia, abundant in *Abies lasiocarpa*; Edmonton, Alta., abundant in *Larix americana*. The type is in the collection of the Entomological Branch, Ottawa.

Orthotomicus ornatus, n. sp.

This is a small elongate species, allied to *sparus* (*balsameus*) Lec., and also to *cælatus* Eichh.

Description of the male—Length, 2.3 mm. The *head* has the front convex, closely, rather coarsely granulate, with the median carina nearly obsolete, the hairs long but sparse; the antennal club about as wide as long, thickened basally, the apical half strongly obliquely truncate, the first suture recurved, with the apical segments almost completely telescoped, showing only one suture at the apex, on the upper surface.

The *pronotum* is distinctly longer than wide, with the sides straight to well beyond the middle, then narrowed to the broadly rounded front margin; coarsely very sparsely asperate and finely granulate, moderately punctured behind, closely on the sides, rather sparsely on the disc, with a smooth medium space becoming narrow and slightly carinate towards the summit.

The *elytra* have the sides straight and parallel for four-fifths the length; then semicircularly rounded behind as viewed from above; the striae narrow, straight, regular, and slightly impressed; the sutural striae slightly wider and more strongly impressed on the disc, still more strongly behind, but not widened before the declivity; the strial punctures rather large except towards the base, regular, quadrate, and *very closely placed*; larger and closer behind; the interspaces nearly flat, those of the disc wider than the striae in front and narrower towards the declivity, uniseriately punctured, the punctures rather numerous, about 12 on the discal interspaces between the base and the top of the declivity, the punctures very small in front becoming as large and close as those of the striae and granulate near the declivity. The *declivity* is vertical, moderately concave, somewhat less deeply than the male of *sparus*; densely, coarsely punctured and hairy; with three acute teeth on each elytron, the first tooth minute, on the second interspace; the second extremely coarse, stout at the base, acute, incurved, on the third and fourth interspaces, much closer to the first tooth than to the third; the third smaller, slender, straight and acute, on the sixth and seventh interspaces; the second and third on the margin of the declivity, which is completed laterally

by a subacute arcuate ridge connecting the second and third teeth; with a small denticle on the end of the fifth interspace at the base of the second tooth; the apical margin of the declivity narrowly separated from the elytral margin, moderately acute, entire, extending across the suture.

The female has the front closely coarsely granulate-punctate, with a narrow median carina on the caudal half developed into a compressed tubercle at the cephalic end on the centre of the front, and with a deep transverse impression between the tubercle and the margin of the epistoma; the declivity nearly vertical, similar to that of the male, but much less deeply concave; the sutural striae still distinctly but much less deeply and broadly sulcate, and the sides of the declivity less elevated and less distinctly margined; the apical margin feeble, barely distinct at the suture; with smaller teeth, situated much as in the male, on the convexity laterad of the sulcus, but in a straight oblique line, the first minute, the second and third alike, small, conical and acute; the concavity densely, coarsely punctured and hairy as in the male. The second visible segment of the abdomen is as long as the next two united.

This species unites the characters of *Orthotomicus* with those of *Pityokteines*. It is allied to *Orthotomicus* in the frontal secondary sexual characters, and in the fairly distinct apical margin of the declivity; but rather closely to the typical *Pityokteines* in the small size, long second visible abdominal sternite, and frequently by the characters of the somewhat variable antennal club.

It is represented in our collection as follows: A short type series from Williams, Arizona, in the Cornell Uni. Collection, No. 302, sub. 100; a short series from Oregon sent by Professor H. F. Wilson; a short series from Tulare, Co. Cal., taken by Mr. Ralph Hopping in *Pinus ponderosa* and *Pinus jeffreyi*. The type is in the collection of the Entomological Branch, Ottawa.

Ips chagnoni, n. sp.

Description of the male—Length, 4.7 mm.; width, 1.75 mm.; larger and stouter than its close ally, *grandicollis* Eich., sides of prothorax and elytra nearly parallel, pronotum slightly wider than the elytra; clothed with stiff, erect, reddish hairs, thick

about the sides, front of the pronotum and margin of the declivity, sparse on disc of pronotum and disc of elytra.

The front of the *head* is much as in *grandicollis*, but more coarsely sculptured, with a median coarse granule near the epistomal margin, succeeded by a broad median impression, and this by the wide smooth median line; the antennal club has the sutures rather broadly but strongly angulate.

The *pronotum* is distinctly but only moderately longer than wide, broadly rounded behind, with the hind angles oblique; the sides subparallel to the middle, then obliquely narrowed and broadly rounded in front; the asperities of the cephalic half rather small and concentric near the summit; the caudal part smooth and shining, rather finely and moderately closely punctured on the disc, with the smooth median space obsolete except at the centre of the disc, closely and more coarsely punctured on the sides.

The *elytra* are punctate-striate, with the striae slightly impressed on the disc, excepting the sutural striae, which are very deeply impressed and wider behind, with the punctures larger, closer and transverse; the punctures of the remaining striae of medium size, circular and more closely placed on the disc; the interspaces flattened, excepting the first two, which are distinctly convex; all the interspaces confusedly punctured and granulate at the margin of the declivity; the lateral interspaces closely uniseriately punctured, with punctures as large as those of the striae, the punctures confused at the base, near the declivity, and on the last two interspaces; the discal interspaces more sparsely punctured, the first rather closely uniseriately punctured throughout and granulate near the declivity, the second punctured only near the declivity and the base, widest and the most strongly convex; the third with three widely separated punctures in addition to those at the base and near the declivity; the fourth punctured forward to the middle and again at the base; the fifth sparsely punctured at the base and closely towards the declivity; and the remaining interspaces closely punctured; the elytra rather densely clothed with stiff reddish hairs on the sides and around the margin of the declivity, with a few hairs along the base, and very sparsely hairy on the disc. The *declivity* is deeply excavated, coarsely,

not densely, confusedly punctured, with numerous minute hairs, thicker and longer near the margin and on the strongly raised suture; the declivital armature nearly as in *grandicollis* Eichhoff; the first tooth small, acute, on the end of the second interspace; the second, on the fourth interspace, large, acute, the apex directed dorso-mesad with the caudal margin crenulate and nearly vertical, connected at its base with the third tooth, which is stouter and longer, blunt and somewhat curved meso-caudad; the fourth and fifth teeth smaller and acute, on the declivital margin between the 3rd and the acute apical margin, which is narrow, acute, and raised almost to the level of the tips of the 4th and 5th teeth.

The *female* is somewhat less coarsely sculptured on the front and declivity.

There is considerable variation in the punctuation, and the discal striae of the elytra are frequently decidedly impressed, with all the discal interspaces convex. The length varies from 4 mm., to 5.2 mm.

This species is distinct from *grandicollis* Eich. in the larger size, stouter form, shorter pronotum, and confusedly punctured interspaces near the declivity; from *vancouveri* and *confusus* by the very sparse punctures on the basal half of the discal interspaces.

The species is abundant in Ontario and Quebec Provinces, chiefly in *Picea canadensis* and *Pinus strobus*; it extends southwards into New York State. The type is from Montreal Island, P. Q., collected by Mr. G. Chagnon, of Montreal, and is deposited in the collection of the Entomological Branch, Ottawa.

***Ips vancouveri*, n. sp.**

Description of the male— Allied to *confusus* Lec., but stouter, densely hairy, and much more coarsely sculptured; length, 5.5 mm.; colour, dark reddish brown.

The *head* has the front evenly convex, coarsely rather sparsely granulate, more finely and densely on the sides; the epistoma transversely impressed, with a narrow median emargination; with a compressed, short, blunt median tubercle at the base of the epistoma, followed by a small median impression, and the smooth median line obsolete; the vertex shining and nearly smooth; the

sutures of the antennal club very strongly angulate at the middle; the pubescence of the front close, long and erect.

The *pronotum* is distinctly longer than wide, widest at the base, with the sides slightly arcuately narrowed for two-thirds the length, then strongly narrowed to the narrow but broadly rounded front margin; subconcentrically, not very densely asperate in front; the pubescence abundant and long about the sides and in front; closely, rather coarsely and deeply punctured behind, more closely on the sides.

The *elytra* are as wide as the pronotum, with the striae strongly impressed on the disc, distinctly impressed on the sides; the sutural striae deep and wide, deepened towards the base, and widened behind; the striae punctures coarse, close, deep and quadrate, smaller near the declivity, the discal interspaces strongly convex and coarsely roughly punctured, not closely near the base, densely and confused on more than the caudal half, and granulate about the declivity; the lateral interspaces with the punctures less coarse but very densely confused throughout; the first interspace closely confusedly punctured and uniseriately granulate; the second interspace the widest, sparsely punctured in front, closely, confusedly granulate-punctate on more than the caudal half and with a row of acute granules terminating in the first declivital tooth, *which is much closer to the second tooth than to the suture*; the declivital teeth otherwise nearly as in *confusus*, but distinctly coarser, the 2nd tooth conical acute, with its caudal margin sinuate and nearly vertical, close to the 3rd, which is stout, subcapitate and curved downwards, the 4th and 5th conical, on the margin of the declivity between the 3rd and the narrow, strongly produced apical margin; the concavity densely, deeply, rather finely punctured, and densely clothed throughout with long slender pale hairs; the *elytra* densely clothed with long hairs, more sparsely on the disc.

The female has the frontal tubercle of the male represented by a slight median episternal carina, followed by a median shining impressed area, and the declivital teeth less strongly developed.

The species occurs in Sitka spruce and western white pine on Vancouver Island and the coast of British Columbia; it occurs

at Kaslo, B. C., and probably elsewhere in the interior. The type is from *Pinus monticola*, Quathiaski Cove, B. C.

The size varies moderately, from 5 mm. to 5.7 mm. in length; the colour, from dark reddish to black; the punctuation from coarse to moderate in size. The type is in the collection of the Entomological Branch, Ottawa.

Leperisinus californicus, n. sp.

This species is allied to *aculeatus* Say, of the same size and shape, with the yellow-grey markings very distinct.

Description of the female—Length, 2.5 mm.; colour, black, with the apex of the pronotum, the base of the elytra, the scape and funicle of the antennæ and the legs red, and the pronotum and elytra distinctly marked with areas of yellow-grey scales. The head has the front broadly moderately concave in front, convex towards the vertex; very finely reticulate and moderately shining; finely granulate-punctate, sparsely in front, with closer, shorter, erect, dark, plumose hairs behind, the epistoma bearing very long, upcurved, slender, plumose hairs, and from the margin a dense fringe of very long, simple, orange-coloured hairs; a sub-triangular area behind the epistoma more brightly shining and with a faint trace of a median carina; the antennal club pubescent, elongate oval, moderately compressed, with the sutures transverse, the last oblique.

The pronotum is very much wider than long, strongly arcuate on the sides and very strongly narrowed in front to the very broadly rounded but not emarginate front margin; with coarse, shallow punctures, finely scabrous on the median area, with rather numerous coarse, lunar rugosities on the middle of the sides, ending in front in a submarginal row of rugosities connecting the lateral dark areas; the colour-markings somewhat as in *aculeatus*, with a black lens-shaped, longitudinal, median area, clothed with elongate, plumose, dark-coloured, almost invisible scales, intermixed with stout plumose hairs; with a longitudinal, narrow, irregular, medially widened, black area in the middle of each side and the remainder of the disc densely clothed with very wide, flat, yellow-grey, plumose scales, with a few stout plumose hairs intermixed, the

scales gradually becoming stout plumose hairs on the ventral surface and along the front margin.

The elytra are shaped much as in *aculeatus*, strongly elevated, arcuate and serrate on the basal margin, and narrowly rounded behind as viewed from above; the declivity very strongly oblique, from the side, so that the median line of the elytra is almost evenly broadly arcuate in profile from the middle to the apex; clothed with scales and erect hairs; the striae very narrow, slightly impressed; the strial punctures small and indistinct; the interspaces wide and nearly flat, on the disc slightly convex towards the base; the suture elevated on the caudal two-thirds, and the third interspace convex, more strongly on the declivity; the interspaces with uniseriate coarse rugosities, becoming lunar and more numerous at the base and more acute behind; densely clothed with very wide, often subcircular, flattened, plumose scales which become stout plumose hairs at the base, long, conspicuous and usually black on the caudal two-thirds of the sides, very slender near the side margin, becoming very large, erect, widely spatulate scales behind on the disc, longer and densely placed on the first and third interspaces of the declivity, making those interspaces apparently carinate, nearly obsolete on the second declivital interspace; on the disc the vestiture coloured in three yellow-grey bands alternating with three dark subtransverse bands; the first band black, suffused with reddish, basal; the second band pale, wide, from the suture to the side margins, extending irregularly backwards on the side, with the pale section of the first interspace attaining the scutellum, that on the second extended farther behind, that on third nearly obsolete; the second pale band, the fourth from the base, is a subquadrate blotch on the 2nd, 3rd, 4th and 5th interspaces, extended forward on the 5th and connected diagonally by scattered pale scales with the base of the first pale band, evidently the remnant of a strongly oblique pale band, surrounded by the 3rd and 5th bands, which are black, and meet on the middle of the side to be extended irregularly to the side margins; the third pale band, the sixth from the base, is transverse, apical, with a narrow extension forward on the 4th and 5th interspaces nearly to the 2nd pale band, and connected by scattered pale scales with a caudal extension of the 1st pale band on the 8th interspace.

The ventral surface is strongly inflated at the metathorax, the abdomen strongly oblique from the metathorax to the apex; the last segment strongly flattened and the last three sutures very deep; clothed with greyish, stout, plumose, scale-like hairs with slender plumose hairs intermixed towards the middle line, with a *dark area* covering the last two segments and the caudal border of the 3rd densely clothed with erect black hairs.

The male has the front less concave, with a well-developed acute postepistomal median carina, with the hairs on the epistoma short except the marginal fringe, which is moderately long.

Labels with the type: San Diego, Cal., 7-18-15, olive, ♀. Adults and work in olive branches were received from Professor E. O. Essig and Dr. E. C. Van Dyke. The species was taken from living olive trees, at San Diego, Cal., in 1914, and was causing much injury to the host. Two specimens of the same species were received from Mr. Ralph Hopping, taken by him on brush in the chapparal belt, Camp Greely, Fresno Co., Cal., 3,000 ft., in 1909.

The type of this species is in the collection of the Entomological Branch, Ottawa.

THE NYMPHS OF ENALLAGMA CYATHIGERUM AND E. CALVERTI.

BY E. M. WALKER, TORONTO.

The nymph of *Enallagma cyathigerum* Charp. has been described by Lucas ('00)¹ and Ris ('09)², that of *E. calverti* Morse by the present writer ('13)³. No description of the nymph of the former species based on American specimens has, however, yet appeared, and this has been a desideratum for two reasons.

In the first place the American form of *cyathigerum* was originally described as a distinct species (*E. annexum* Hagen), and has been frequently cited under this name, or as *E. cyathigerum* race *annexum*, and although Williamson ('02)⁴ pointed out its identity with *cyathigerum*, and has been generally followed, the question of the validity of *annexum* as a race has always seemed to me not indisputable. I have examined a large number of Canadian specimens from a very wide range of territory and also a number of European examples, and, although I regard them all as one species, I have never had any difficulty in separating the